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suns of various ages and exhibiting the process of evolution in different stages, so it may be that the progress of research will lead us to recognize the existence of atoms of matter in like case, some recently formed, and some very ancient; and the whole argument seems to lead to an atomic astronomy of surpassing interest.

SCIENTIFIC NOTES AND NEWS.

M. AMAGAT, of the Paris Polytechnic School, has been elected a member of the Paris Academy of Sciences in the section of physics, and Dr. H. A. Lorentz, professor of physics at Leiden, has been elected a correspondent in the same section.

LORD KELVIN and Lord Lister have been elected honorary members of the Royal Society of New South Wales.

LORD LISTER, in recognition of his 'long and valuable services to the country and particularly to surgery by the discovery and application of the antiseptic treatment,' has been admitted to the honorary freedom of the Merchant Taylors' Company, London.

DR. W. J. MCGEE has been appointed chief of the Department of Anthropology and Ethnology at the Louisiana Purchase Exposition.

DR. PHILIP HENRY PYE-SMITH, F.R.S., has been reelected chancellor of the University of London.

DR. G. VON ESCHERICH, professor of mathematics, has been made rector of the University of Vienna.

THE University of Groningen has conferred an honorary doctorate of mathematics and astronomy on Dr. C. Easton, director of the Observatory at Rotterdam.

DR. F. HOFMANN, professor of experimental hygiene at Leipzig, has celebrated the twenty-fifth anniversary of his professorship.

DR. B. E. LIVINGSTON, instructor in plant physiology in the University of Chicago, has been granted a research scholarship in the New York Botanical Garden, beginning September 1, 1903.

For the Michigan State Geological Survey Dr. A. W. Grabau will continue his studies of the Dundee and Traverse Limestones of the state, which are proving of great economic value. The survey has just issued a report on Portland cement, clay and coal, and soon expects to issue one on gypsum by Professor G. P. Grimsley. Dr. F. E. Wright, of the Michigan College of Mines and Geological Survey, is conducting some investigations of the copper-bearing rocks of the Porcupine Mountains. Mr. Leon J. Cole has prepared a study of the growth of the St. Clair Delta. Mr. Robert Muldrow is mapping the quadrangle around Detroit for the U. S. Geological Survey in conjunction with the State Survey. Mr. Lane's papers on the water supply of Michigan being entirely exhausted, the State and U. S. Geological Surveys are actively engaged in preparing for revised and extended editions. Messrs. R. E. Horton, W. M. Gregory and W. F. Cooper are engaged in this work.

THE present board of visitors of the Royal Observatory, Greenwich, is composed as follows: Sir W. Huggins, Professor H. H. Turner, Professor W. G. Adams, Professor J. Larmor, Sir J. N. Lockyer, Lord Rayleigh, Lord Rosse, Sir A. Rücker, Sir W. Abney, Sir R. Ball, Professor R. B. Clifton, Dr. J. W. L. Glaisher, Professor G. H. Darwin, Rear-Admiral Sir W. J. L. Wharton, Mr. W. D. Barber.

DR. J. E. DUTTON and Dr. J. L. Todd, principals of the Trypanosoma Expedition of the Liverpool School of Tropical Medicine, have returned to England from Senegal, where they have been investigating trypanosomiasis, a human disease similar to the tsetse fly disease which is the chief cause of mortality among the horses.

THE following British civil list pensions have been granted: £100 to Mrs. Adelaide Fanny Eyre in consideration of the services of her late husband, Mr. Edward John Eyre, the Australian explorer and Governor of Jamaica; £120 to Mrs. Zare Elizabeth Blacker in recognition of the services of her late husband, Dr. A. Barry Blacker, who lost his life

through his devotion to medical research; and £105 to Mr. James Sully in recognition of his services to psychology.

MR. WILLIAM E. DODGE, chairman of the committee appointed by Mayor Low to raise an endowment fund for Cooper Union as a memorial to Abram S. Hewitt, sent to the mayor a check for \$211,310, which has been transferred to the treasurer of Cooper Union. Twenty-one persons contributed to the fund, including Andrew Carnegie, \$55,000; John D. Rockefeller, \$50,000; J. Pierpont Morgan and William E. Dodge, \$25,000 each; George F. Baker, Jacob H. Schiff and Henry Phipps, \$10,000 each.

THE Lord Mayor of Belfast is chairman of a committee that will present to Queen's College, Belfast, a portrait of Dr. J. W. Byers, professor of the diseases of women and children.

THE Misses Gladstone have presented to the Royal Institution the portrait of the late John Hall Gladstone, formerly professor of chemistry in the Institution.

DR. F. BAUER, docent in the Munich Institute of Technology, has been killed by an Alpine accident at the age of thirty-three years.

DR. P. H. KELLER, honorary professor of physics at the University of Rome, has died at the age of seventy-seven years.

SIR GEORGE STOKES bequeathed his scientific apparatus to the University of Cambridge. It has been distributed among the Chemical, Physical and Mineralogical Departments.

THE library of the late Professor Schade, formerly director of the surgical clinic of the University of Bonn, has been presented to the clinic by his widow.

MRS. MARY E. RYLE has given \$130,000 toward the construction of a new library building at Paterson, N. J.

THE Royal Academy of Belgium offers next year its Charles Lagrange prize of the value of 1,200 francs for a paper adding to our mathematical knowledge of the earth. It also offers the Theophile Gluge prize of the value of 1,000 francs for the best work on physiology. The following year it offers its De Selys Long-

champs prize of the value of 2,500 francs for the best original work on the fauna of Belgium. These prizes are open to foreigners.

THE bill which passed the Michigan legislature, and was supported by the Michigan Academy of Science, providing for a biological survey of the state under the supervision of the state geologist, unfortunately failed to receive the approval of the governor. The state geologist was called east just at the close of the legislature by the death of his brother, Mr. L. P. Lane, of the Statistical Department of the Boston Public Library.

THE Sanitary Institute of Great Britain held its twenty-first congress at Bradford during the second week of July under the presidency of Lord Stamford.

THE Association of German Engineers met at Munich at the end of June.

THE sixth International Congress of Psychology, which was to have met in Rome in the autumn of 1904, will be postponed to the spring of 1905 to avoid conflict with the sixth International Congress of Physiology which meets at Brussels in the autumn of 1904.

At a meeting held recently in Manchester it was unanimously resolved that it is desirable to hold an international exhibition in that city in 1905.

A STOCKHOLM correspondent writes, on July 5, to the London *Times*, that the Norwegian steamer *Frithiof*, chartered by this expedition, will arrive from Tromsø in a few days for outfitting. It is expected that the ship will be ready to start about the middle of August. Lieutenant Blom, of the Swedish navy, who two years ago accompanied the trigonometrical survey expedition to Greenland, has been appointed second in command. The young Swedish zoologist, Baron Klinkowström, will also accompany the *Frithiof*. Three expeditions are thus now hurrying to the rescue of de Nordenskiöld and his companions. The Swedish, on board the *Frithiof*; the Argentine, in the *Uruguay*; and the French, in the *Français*.

THE official report of Professor Drygalski on the German Antarctic expedition was

published on July 10, in a special supplement of the *Imperial Gazette*. According to Reuter's Agency the report begins with the start from Kerguelen on January 31, 1902. The ship reached the Heard Islands on February 3, from which point the regular South Polar voyage began. The *Gauss* proceeded in a southeasterly direction towards a land the existence of which was reported by the Wilkes expedition, but placed in doubt by the Challenger expedition. After a rough voyage the first drift ice was reached in February 13 at $61^{\circ} 58'$ south latitude, $95^{\circ} 8'$ west longitude. From the 18th to the 22d of February, 1902, an effort was made to make a good push southward, but this was stopped, the *Gauss* being fast caught in the ice and thus compelled to lie up for the winter. Professor Drygalski christened the bay in which the *Gauss* lay Posadowski Bay, and the ice-free volcanic peak, 1,200 feet high, on the south side of the *Gauss* was named the Gaussberg. On February 8, 1903, the *Gauss* was set free by a strong easterly wind, and went along the northern edge of the western ice, which she finally lost sight of on February 19, 1903, in $65^{\circ} 32'$ south latitude and $87^{\circ} 40'$ east longitude. She then drew near to the ice again, and was held fast from March 6 to March 14 for a second time. She again managed to reach the open sea, in which she advanced as far as $64^{\circ} 51'$ south latitude and $8^{\circ} 14'$ east longitude. Traveling became difficult owing to the ever-growing length of the nights. On April 8, 1903, it was determined to turn back northward at $64^{\circ} 58'$ south latitude and $79^{\circ} 33'$ east longitude. On April 8 Kerguelen was passed, and on June 9 Simons Town was reached, all well.

'FURTHEST South with the Discovery,' Lieutenant Shackleton's narrative, with illustrations of the first eighteen months' work of the National Antarctic Expedition under Captain Scott, has been acquired for publication by the *Illustrated London News*. The first part of the narrative was promised for June 27, as a supplement to the ordinary number of the *Illustrated London News*.

THE London *Times* states that at the invitation of Lord Lister and the governing body of the Jenner Institute about 100 gentlemen traveled down to Elstree on July 3 to inspect the new antitoxin department of the Jenner Institute of Preventive Medicine. With Lord Lister were Lord Iveagh, Sir Michael Foster, Sir Henry Roscoe and Mr. J. Luard Pattisson, members of the governing body, and Dr. Macfadyen, chief bacteriologist. The resident staff, consisting of Dr. George Dean, Dr. Todd and Dr. Petrie, received the party at Elstree and conducted them over the establishment, which is devoted to the preparation of antitoxins on a commercial scale, and to the experimental investigation of questions connected with immunity. This department of the institute's work used to be carried on at Sudbury, but, in consequence of compulsory disturbance to make room for the Great Central Railway, it has been transferred to Queensberry-lodge, near Elstree. The institute is fortunate in having secured so good a site. The place was formerly a breeding stable, and it contains first-rate accommodation for 36 horses. Each animal has a loose-box of the most modern and sanitary type. There was, in addition, a small house, which affords room for two members of the staff and is surrounded by a large garden and some 23 acres of meadowland. The whole stands high in a healthy, isolated and wholly rural situation. A suite of laboratories has now been added. They are most conveniently arranged and constructed according to the latest requirements, with papyrolith floors having rounded corners, glazed adamant walls, white tiles and large windows. In the garden are isolated houses for the smaller animals. The visitors, who inspected the whole establishment with the interest of experts, were greatly pleased with the construction and arrangement of the premises. They were particularly struck with the healthy and well-kept-up appearance of the horses, and with the cleanliness and order maintained in every part of the establishment.

REUTER'S AGENCY reports that the Liverpool School of Tropical Medicine has received a report from the Suez Canal Company on the

subject of the result of Major Ross's recommendations for the improvement of the sanitary conditions at Ismailia, with special reference to the campaign against mosquitoes. Major Ross, accompanied by Sir William MacGregor, went out to Ismailia in the autumn of last year to study the question of the prevalence there of malaria. Major Ross was sent out by the Liverpool School of Tropical Medicine, at the special request of Prince d'Arenberg. The report begins by referring to a statement made quite recently by the principal medical officer of the Sudan to Major Ross that the sanitary state of Ismailia is now much improved. The secretary-general proceeds to say that since the visit of the expedition of the school to Ismailia in September last several important drainage works have been undertaken, including the filling up of water puddles, and that a special service had been created for the purpose of supervising this work, specially charged with the duty of pouring oil on the pools and disused wells, doing away with marshes, puddles, etc., existing in and near the residential quarters of Ismailia. On the other hand prophylactic measures, such as gratuitous distribution of quinine, 'liqueur de Fowler,' have been continued without interruption since April, 1902. In December the number of cases of fever had decreased in a most marked manner compared with preceding months and the corresponding month in the previous year. The secretary-general states that this diminution in fever has been maintained up to the date of writing—namely, July 2 in the present year. Thanks to systematic oiling of pools and to the unceasing watch kept over all likely places where larvæ can be hatched, the ordinary mosquitoes of the genus *Culex* and *Stegomyia* have been annihilated almost absolutely, and even in the worst period of the hot season it has been found possible to dispense with the use of mosquito nets. The secretary-general ends with a testimony to the value of the work of the expedition, and says they have every hope that the assistance rendered by Major Ross will result in the complete abolition of malaria from the town of Ismailia.

THE U. S. Geological Survey has just issued a list, complete up to June, 1903, of its serial publications, consisting of Annual Reports, Monographs, Professional Papers, Bulletins, Mineral Resources, Water-Supply and Irrigation Papers, Topographic Atlas of the United States, and Geologic Atlas of the United States. Monographs, topographic sheets and geologic folios are sold at cost of publication—topographic sheets (of which indexes, free on application, are published from time to time) are sold at 5 cents each, or \$2 per 100 in one order; geologic folios usually at 25 cents each; the other publications are distributed free. The latest professional papers are: No. 15, 'Mineral Resources of the Mount Wrangell District, Alaska,' by W. C. Mendenhall and F. C. Schrader; No. 16, 'Carboniferous Formations and Faunas of Colorado,' by G. H. Girty; No. 17, 'Preliminary Report on the Geology and Water Resources of Nebraska West of the One Hundred and Third Meridian,' by N. H. Darton; No. 18, 'Chemical Composition of Igneous Rocks expressed by means of Diagrams, with reference to rock classification on a quantitative chemico-mineralogical basis,' by J. P. Iddings. The latest bulletins are: No. 213, 'Contributions to Economic Geology, 1902,' S. F. Emmons and C. W. Hayes, geologists in charge; No. 214, 'Geographic Tables and Formulas,' compiled by S. S. Gannett; No. 215, 'Catalogue and Index of the Publications of the United States Geological Survey, 1901 to 1903,' by P. C. Warman; No. 216, 'Results of Primary Triangulation and Primary Traverse, Fiscal Year 1902-3,' by S. S. Gannett. The latest water-supply papers are: No. 80, 'Relation of Rainfall to Run-off,' by G. W. Rafter; No. 81, 'California Hydrography,' by J. B. Lipincott; Nos. 82, 83, 84, 85, 'Report of Progress of Stream Measurements for the Calendar Year 1902,' by F. H. Newell; No. 86, 'Storage Reservoirs of Stony Creek, California,' by Burt Cole. The latest geologic folios ready for distribution are: No. 90, 'Cranberry, Tennessee'; No. 91, 'Hartville, Wyoming'; No. 92, 'Gaines, Pennsylvania, New York'; No. 93, 'Elkland-Tioga, Pennsylvania.' All the

above mentioned geologic folios are sold for 25 cents each. Application for any and all publications should be made to the Director, U. S. Geological Survey, Washington, D. C.

A NOTE in the *British Medical Journal* states that the opening up of Central and Eastern Africa has revealed the fact that instead of zebras being nearly extinct, these animals exist in large numbers on the banks of the Tama River and in the province of Ukamba. Unlike horses and cattle, they are proof against horse sickness and the fatal tsetse fly. At the present time, for land transport in war, mules are almost universally employed, and they are used for the carriage of mountain batteries. Professor Cossar Ewart has at Penycuik since 1895 been endeavoring by zebra-horse hybrids to 'evolve' an animal that shall be superior to the mule for the purposes for which that animal is usually employed. There are three kinds or types of zebras—namely, Grevy's zebra of Shoa and Somaliland, the mountain zebra (*equus zebra*), once common in South Africa, and known as the common zebra, and the widely-distributed Burchell group of zebras. The zebra-horse hybrids were obtained by crossing mares of various sizes with a zebra stallion, a Burchell's zebra; and the new animals get the name of 'zebrules.' They seem excellently adapted by their build and general make, as well as by the hardness of hoof, for transport purposes and artillery batteries. The zebra striping is often distinct, though in color they more generally resemble their dam. They stand fourteen hands high, with a girth measurement of sixty-three inches. Their temper seems to be better than that of the ordinary mule, and they are exceedingly active, alert and intelligent. The Indian government is giving them a trial in Quetta for mountain battery work, and they are being put, also, to a practical test in Germany.

UNIVERSITY AND EDUCATIONAL NEWS.

THE Royal Geographical Society has appropriated £200 a year for five years, and the general board of studies of Cambridge University the same sum for a School of Geography at the university.

PROFESSOR W. N. FERRIN has been elected president of the Pacific University at Forest Grove, Oregon.

DR. ALLEN J. SMITH, present professor of pathology in the University of Texas, has been elected professor of pathology at the University of Pennsylvania, in succession to Dr. Simon Flexner, director of the Rockefeller Institute, New York.

MR. EDGAR JAMES SWIFT, A.B. (Amherst, 1886), who has held a fellowship at Clark University for the past two years and has just taken an examination for the doctor's degree there, has been appointed professor of psychology and pedagogy in the Washington University at St. Louis.

MR. M. E. STICKNEY, of Harvard University, has been appointed instructor in botany in Denison University to succeed Mr. W. W. Stockberger, resigned.

THE following appointments have been made at McGill University: Dr. J. G. McCarthy, to be assistant professor of anatomy; Dr. J. T. Halsey, to be assistant professor of pharmacology and therapeutics; Dr. R. A. Kerry, to be lecturer in pharmacology and therapeutics; Dr. S. Ridley Mackenzie, to be lecturer in clinical surgery; Dr. John McCrae, to be lecturer in pathology; Dr. D. A. Shirres, to be lecturer in neuro-pathology; Dr. D. D. McTaggart, to be lecturer in medico-legal pathology.

AT University College, London, Dr. Page May has been appointed lecturer on the physiology of the nervous system, and Mr. J. H. Parsons, lecturer on physiological optics.

A CHAIR of agricultural botany has been established at Rennes, with M. Danniell as professor.

DR. EMIL KRAEPELIN, professor of psychiatry at Heidelberg, has been called to Munich.

DR. W. LOSSEN, professor of chemistry at Königsberg, has retired.

DR. CARL HUGO HUPPERT, professor of medical chemistry at the German University of Prague, will retire at the end of the present semester.